subjecting the photocatalyst to photoexcitation to render the surface of the composite hydrophilic; and

subjecting the composite to humidity.

302. The method of claim 301, wherein, after photoexcitation, the surface of the composite has a water wettability of less than 10° in terms of the contact angle with water.

303. The method of claim 301, wherein, after photoexcitation, the surface of the composite has a water wettability of less than 5° in terms of the contact angle with water.

304. The method of claim 301, wherein, after photoexcitation, the surface of the composite has a water wettability of about 0° in terms of the contact angle with water.

305. The method of claims 301 or 302, wherein said photocatalyst is selected from the group consisting of TiO_2, ZnO, SnO_2, $Sr\ TiO_3$, WO_3, Bi_2O_3 and Fe_2O_3.

306. The method of claim 305, wherein said photocatalytic surface layer further comprises a metal selected from the group consisting of Ag, Cu and Zn.

307. The method of claim 305, wherein said photocatalytic surface layer further comprises a metal selected from the group consisting of Pt, Pd, Rh, Ru, Os and Ir.

308. The method of claims 301 or 302, wherein said composite further comprises a protective coating over the photocatalytic surface layer.

309. The method of claims 301 or 302, wherein said substrate comprises glass.

310. The method of claims 301 or 302, wherein said substrate comprises glass containing alkaline network modifier ions, and wherein said composite further comprises a film disposed between said substrate and said photocatalytic surface layer, said film preventing ions from diffusing from said substrate into said photocatalytic surface layer.

311. The method of claim 301, wherein the photocatalyst is subjected to photoexcitation by exposing the composite to sunlight or UV light having an intensity within the range from 0.001 to 1 mW/cm^2.

312. A method for maintaining the surface of a composite in a clean state when subjected to deposits and contaminants in air and environmental precipitation, comprising:

providing a composite comprising a substrate and a photocatalytic surface layer, said photocatalytic surface layer comprising (1) a photocatalyst, and (2) silica or a silicone;

subjecting the photocatalyst to photoexcitation to render the surface of the composite hydrophilic; and

contacting the surface of the composite with water.

313. The method of claim 312, wherein, after photoexcitation, the surface of the composite has a water wettability of less than about 20° in terms of the contact angle with water.

314. The method of claim 312, wherein, after photoexcitation, the surface of the composite has a water wettability of less than 10° in terms of the contact angle with water.

315. The method of claim 312, wherein, after photoexcitation, the surface of the composite has a water wettability of less than 5° in terms of the contact angle with water.

316. The method of claim 312, wherein, after photoexcitation, the surface of the composite has a water wettability of about 0° in terms of the contact angle with water.

317. The method of claims 312 or 313, wherein said photocatalyst is selected from the group consisting of TiO_2, ZnO, SnO_2, Sr TiO_3, WO_3, Bi_2O_3 and Fe_2O_3.

318. The method of claim 317, wherein said photocatalytic surface layer further comprises a metal selected from group consisting of Ag, Cu and Zn.